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JSC-11401  
(Revision A)

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160618

IMPLEMENTATION SPECIFICATION FOR LARGE AREA CROP INVENTORY  
EXPERIMENT (LACIE) PHASE III AUTOMATIC STATUS  
AND TRACKING SYSTEM

Job Order 71-695

(This revision supersedes issue dated August 1976.)

Prepared By

Lockheed Electronics Company, Inc.  
Systems and Services Division  
Houston, Texas

Contract NAS 9-15200

For

EARTH OBSERVATIONS DIVISION  
SCIENCE AND APPLICATIONS DIRECTORATE



*National Aeronautics and Space Administration*  
**LYNDON B. JOHNSON SPACE CENTER**  
**Houston, Texas**

March 1977

(E80-10249) IMPLEMENTATION SPECIFICATION  
FOR LARGE AREA CROP INVENTORY EXPERIMENT  
(LACIE) PHASE 3 AUTOMATIC STATUS AND  
TRACKING SYSTEM (Lockheed Electronics Co.)  
46 p HC A03/MF A01

N80-30832 LEC-8675  
Revision A

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March 1977

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DRL NO. AND REVISION	MAJOR EQUIPMENT GROUP DEC PDP 11/45 RSX 11D
DRL LINE ITEM NO.	
13. ABSTRACT  Operational and functional requirements for the development of the Automatic Status and Tracking System for Phase III of the Large Area Crop Inventory Experiment are given, and a general overview of the system is presented.	
14. SUBJECT TERMS	
<u>Data management</u> _____ <u>Status and tracking</u> _____ <u>LACIE Phase III</u> _____	

## PREFACE

The purpose of this document is to establish the requirements for the Phase III Automatic Status and Tracking System of the Large Area Crop Inventory Experiment (LACIE) for implementation on the PDP 11/45 computer. The LACIE Phase III Automatic Status and Tracking System will provide mechanisms for statusing, tracking, monitoring, and reporting LACIE Phase III imagery and evaluation data and will enable LACIE operations personnel to respond to management requests for status and statistical data.

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## 1. PURPOSE AND SCOPE

This document establishes requirements for the development of the Automatic Status and Tracking System (ASATS) for Phase III of the LACIE. The ASATS will enable the Earth Observations Division (EOD) of the Lyndon B. Johnson Space Center (JSC) to monitor LACIE data processing and evaluation and to respond to management requests for status and statistical data.

The LACIE Phase III ASATS is being developed by the Earth Observations Data Products Department of Lockheed Electronics Company, Inc./Systems and Services Division (LEC/SSD) in support of the EOD Systems and Facilities Branch (SFB). The task is being accomplished under job order 71-695.

## 2. SYSTEM OVERVIEW

### 2.1 FUNCTIONS

The primary functions of the LACIE Phase III ASATS are to

- a. Monitor, track, and report LACIE data flow and data evaluation.
- b. Provide LACIE project and subsystems data flow summary reports.
- c. Enable LACIE operations personnel to respond to management requests for status and statistical data.
- d. Provide data for subsystem work scheduling.
- e. Provide historical data on completed acquisitions.

### 2.2 BACKGROUND

The ASATS described in this document is being developed in response to requirements prepared by the LACIE Status and Tracking Working Task Group comprised of representatives from the ASATS user and implementation organizations. Experience gained from the operation of both automated and manual status and tracking systems during Phase I and Phase II has been significantly beneficial in the development of the requirements described here.

### 2.3 GENERAL DESCRIPTION

The ASATS will collect, store, and report LACIE sample segment and acquisition descriptions and status data. The data will be batch input using punched cards.

Two data bases will be established on input and revised as applicable.

- a. Phase II - This data base contains information on all Phase II sample segments identified to the Goddard Space Flight Center (GSFC) for imagery processing and status information on all acquisitions received at JSC which are associated with those sample segments.
- b. Phase III - This data base contains information on all Phase III sample segments identified to GSFC for imagery processing and status information on all acquisitions received at JSC which are associated with those sample segments.

The data bases will be resident on a system which can provide for demand or batch updating, access, and retrieval.

The ASATs will provide daily management reports for LACIE scheduling, evaluation, and decision making processes. It will also provide demand query capability for the satisfaction of management requests for additional status and statistical data.

## 2.4 ASSUMPTIONS AND CONSTRAINTS

### 2.4.1 SOFTWARE

- a. Cards may be input in any sequence.
- b. Transaction dates must be filled in for individual input cards when the transaction date differs from the current date.
- c. Card types valid for processing are limited to \*, 2, 3, 4, 5, 6, 7, 8, 9, B, G, H, I, J, K, M, Q, U, and X.
- d. Input card duplicates will not be processed.
- e. The cards \*, 2, 3, and B will add new records or will modify data for which the input fields are not equal to blank.

#### 2.4.2 DATA BASE SIZING

Current estimates indicate that the active data base is expected to handle from about 3500 to 4800 segments (at about 8 acquisitions per segment) for approximately 28K to 38K logical records. However, the data base size may vary considerably due to the dynamic conditions of the program. An estimate of the expected acquisition flow rate is given in figure 2-1.

#### 2.5 SECURITY

Security of the data bases, in general, should be preserved by limiting the "read/write" system access to as few qualified personnel as possible. Other users may be permitted a "Read Only" access to the files whereby they may retrieve data, format specialized reports, and save programs/data specifically set aside for such users without affecting the data bases on the data base directory.



Figure 2-1.- Phase III acquisitions.

2.4  
5

### 3. SYSTEM REQUIREMENTS

This section presents the operational and functional requirements of the LACIE Phase III ASATS.

#### 3.1 OPERATIONAL REQUIREMENTS

##### 3.1.1 HARDWARE/SOFTWARE CONFIGURATION

Both interactive and batch terminals are required in JSC Building 17 to support the system. A card reader, a card punch, and a line printer are required for batch update and report printing, and an interactive terminal with print capability will be used for data base management and special queries.

##### 3.1.2 DATA INPUT

The ASATS will accept input data on sample segment descriptions and acquisition activity through punched cards submitted by the responsible subsystem or area personnel. A simplified LACIE data flow diagram is presented in figure 3-1. The ASATS status points and the organizations responsible for their reporting are also shown in this figure.

For DAPTS (status point 1), the status steps are the following:

- a. Sample segments ordered from GSFC
- b. Sample segment descriptive information
- c. Biological phase open-close dates for segments
- d. Changes to sample segment (DAPTS) data records

For the LACIE Physical Data Library [(LPDL), status point 2], the status steps are the following:

- a. Receipt of the topographic map by sample segment
- b. Receipt of the ancillary summary by sample segment
- c. Receipt of the crop calendar by sample segment

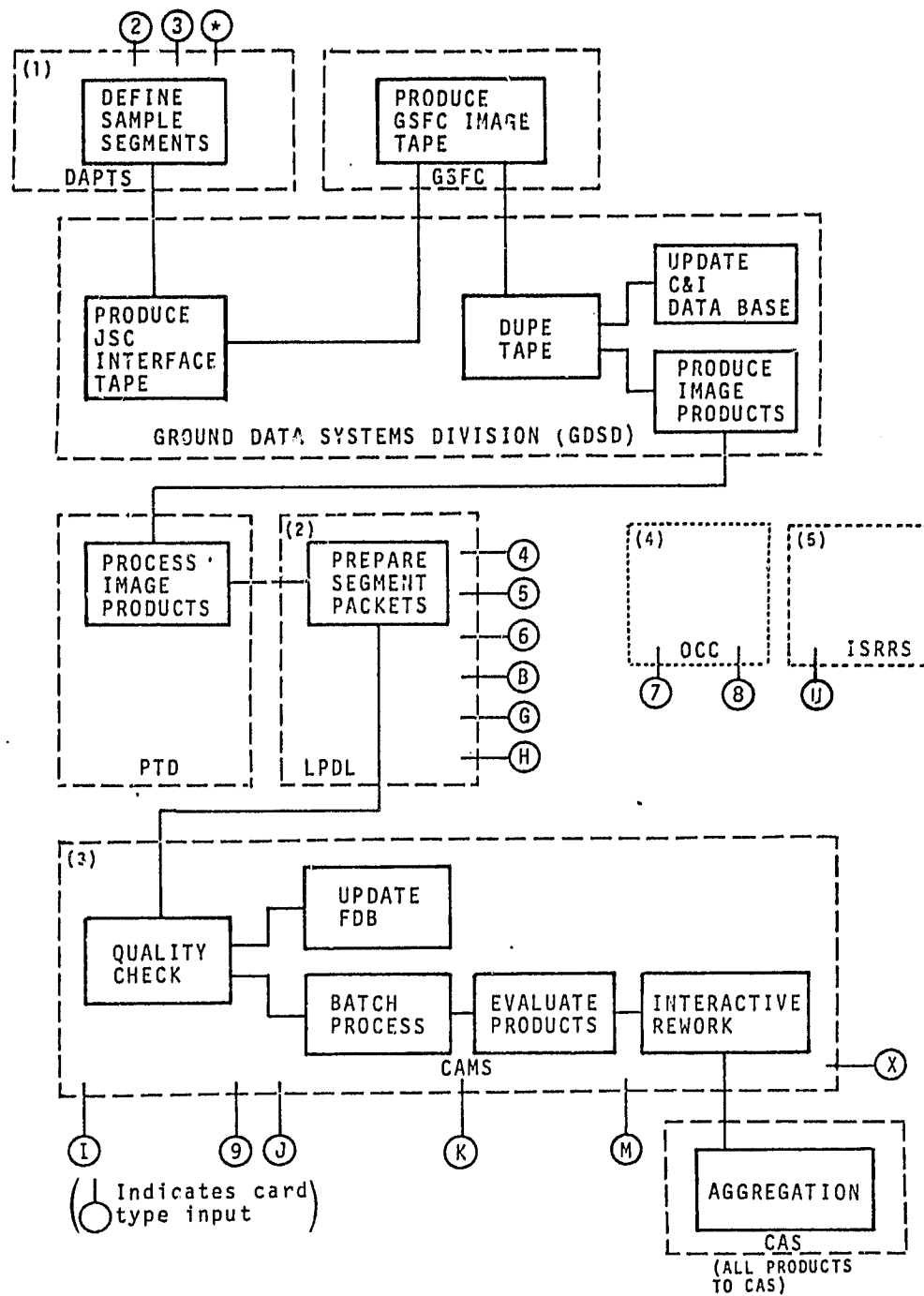


Figure 3-1.— The LACIE data flow indicating ASATS status points.

- d. Receipt of the composite GSFC tape listing and cataloging and indexing (C&I) update transaction report by acquisition
- e. Receipt of imagery from the Photographic Technology Division (PTD) by acquisition
- f. Packet ready for Classification and Mensuration Subsystem (CAMS) pickup by acquisition

For the CAMS (status point 3), the status steps are the following:

- a. Packet received from the LPDL
- b. Batch processing submitted
- c. Batch products received
- d. Rework started
- e. Summary delivered to the Crop Assessment Subsystem (CAS)
- f. Acquisition rejected

For the Operations Coordination Center [(OCC), status point 4 as required], the status steps are the following:

- a. Acquisition reordered
- b. Acquisition processing cancelled
- c. Transaction date (current date)

For the Information Storage, Retrieval, and Reformatting Subsystem [(ISRRS), status point 5 as required], the status steps are as follows:

- a. Image purged

### 3.1.3 BATCH OPERATION

The ASATS is to be designed so that data base update and report generation will be performed in an overnight batch mode with input data from punched cards. Input card formats are illustrated in figures 3-2, 3-3, and 3-4.



KEY PUNCH TRANSMITTAL		FLOCON/OCC/ISRRE		CARD FORMAT POSITIONS	
TO	FROM	FIELD IDENTIFICATION	FIELD POSITIONS	FIELD POSITIONS	FIELD POSITIONS
1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100	101	102
103	104	105	106	107	108
109	110	111	112	113	114
115	116	117	118	119	120
121	122	123	124	125	126
127	128	129	130	131	132
133	134	135	136	137	138
139	140	141	142	143	144
145	146	147	148	149	150
151	152	153	154	155	156
157	158	159	160	161	162
163	164	165	166	167	168
169	170	171	172	173	174
175	176	177	178	179	180
181	182	183	184	185	186
187	188	189	190	191	192
193	194	195	196	197	198
199	200	201	202	203	204
205	206	207	208	209	210
211	212	213	214	215	216
217	218	219	220	221	222
223	224	225	226	227	228
229	230	231	232	233	234
235	236	237	238	239	240
241	242	243	244	245	246
247	248	249	250	251	252
253	254	255	256	257	258
259	260	261	262	263	264
265	266	267	268	269	270
271	272	273	274	275	276
277	278	279	280	281	282
283	284	285	286	287	288
289	290	291	292	293	294
295	296	297	298	299	300
301	302	303	304	305	306
307	308	309	310	311	312
313	314	315	316	317	318
319	320	321	322	323	324
325	326	327	328	329	330
331	332	333	334	335	336
337	338	339	340	341	342
343	344	345	346	347	348
349	350	351	352	353	354
355	356	357	358	359	360
361	362	363	364	365	366
367	368	369	370	371	372
373	374	375	376	377	378
379	380	381	382	383	384
385	386	387	388	389	390
391	392	393	394	395	396
397	398	399	400	401	402
403	404	405	406	407	408
409	410	411	412	413	414
415	416	417	418	419	420
421	422	423	424	425	426
427	428	429	430	431	432
433	434	435	436	437	438
439	440	441	442	443	444
445	446	447	448	449	450
451	452	453	454	455	456
457	458	459	460	461	462
463	464	465	466	467	468
469	470	471	472	473	474
475	476	477	478	479	480
481	482	483	484	485	486
487	488	489	490	491	492
493	494	495	496	497	498
499	500	501	502	503	504
505	506	507	508	509	510
511	512	513	514	515	516
517	518	519	520	521	522
523	524	525	526	527	528
529	530	531	532	533	534
535	536	537	538	539	540
541	542	543	544	545	546
547	548	549	550	551	552
553	554	555	556	557	558
559	560	561	562	563	564
565	566	567	568	569	570
571	572	573	574	575	576
577	578	579	580	581	582
583	584	585	586	587	588
589	590	591	592	593	594
595	596	597	598	599	600
601	602	603	604	605	606
607	608	609	610	611	612
613	614	615	616	617	618
619	620	621	622	623	624
625	626	627	628	629	630
631	632	633	634	635	636
637	638	639	640	641	642
643	644	645	646	647	648
649	650	651	652	653	654
655	656	657	658	659	660
661	662	663	664	665	666
667	668	669	670	671	672
673	674	675	676	677	678
679	680	681	682	683	684
685	686	687	688	689	690
691	692	693	694	695	696
697	698	699	700	701	702
703	704	705	706	707	708
709	710	711	712	713	714
715	716	717	718	719	720
721	722	723	724	725	726
727	728	729	730	731	732
733	734	735	736	737	738
739	740	741	742	743	744
745	746	747	748	749	750
751	752	753	754	755	756
757	758	759	760	761	762
763	764	765	766	767	768
769	770	771	772	773	774
775	776	777	778	779	780
781	782	783	784	785	786
787	788	789	790	791	792
793	794	795	796	797	798
799	800	801	802	803	804
805	806	807	808	809	810
811	812	813	814	815	816
817	818	819	820	821	822
823	824	825	826	827	828
829	830	831	832	833	834
835	836	837	838	839	840
841	842	843	844	845	846
847	848	849	850	851	852
853	854	855	856	857	858
859	860	861	862	863	864
865	866	867	868	869	870
871	872	873	874	875	876
877	878	879	880	881	882
883	884	885	886	887	888
889	890	891	892	893	894
895	896	897	898	899	900
901	902	903	904	905	906
907	908	909	910	911	912
913	914	915	916	917	918
919	920	921	922	923	924
925	926	927	928	929	930
931	932	933	934	935	936
937	938	939	940	941	942
943	944	945	946	947	948
949	950	951	952	953	954
955	956	957	958	959	960
961	962	963	964	965	966
967	968	969	970	971	972
973	974	975	976	977	978
979	980	981	982	983	984
985	986	987	988	989	990
991	992	993	994	995	996
997	998	999	1000	1001	1002
1003	1004	1005	1006	1007	1008
1009	1010	1011	1012	1013	1014
1015	1016	1017	1018	1019	1020
1021	1022	1023	1024	1025	1026
1027	1028	1029	1030	1031	1032
1033	1034	1035	1036	1037	1038
1039	1040	1041	1042	1043	1044
1045	1046	1047	1048	1049	1050
1051	1052	1053	1054	1055	1056
1057	1058	1059	1060	1061	1062
1063	1064	1065	1066	1067	1068
1069	1070	1071	1072	1073	1074
1075	1076	1077	1078	1079	1080
1081	1082	1083	1084	1085	1086
1087	1088	1089	1090	1091	1092
1093	1094	1095	1096	1097	1098
1099	1100	1101	1102	1103	1104
1105	1106	1107	1108	1109	1110
1111	1112	1113	1114	1115	1116
1117	1118	1119	1120	1121	1122
1123	1124	1125	1126	1127	1128
1129	1130	1131	1132	1133	1134
1135	1136	1137	1138	1139	1140
1141	1142	1143	1144	1145	1146
1147	1148	1149	1150	1151	1152
1153	1154	1155	1156	1157	1158
1159	1160	1161	1162	1163	1164
1165	1166	1167	1168	1169	1170
1171	1172	1173	1174	1175	1176
1177	1178	1179	1180	1181	1182
1183	1184	1185	1186	1187	1188
1189	1				

Figure 3-4.- LPDL input card formats.

### 3.1.4 OUTPUT

#### 3.1.4.1 Batch Reports

The ASATS will generate the following reports as a part of the overnight batch operation. On a daily basis, audits, punched cards, packet labels, and packet order lists will be generated. Monthly, the biowindow open report and the biowindow close report will be generated in addition to the daily reports.

#### 3.1.4.2 Cards

As a part of normal batch operation, the ASATS will output G and H punched cards without the transaction dates for all acquisitions receiving B cards in the same update. The ASATS will also output 4, 5, and 6 punched cards without the transaction dates for all segments receiving \*, 2, and 3 cards (new records).

#### 3.1.4.3 Labels

As a part of the normal batch operation, the ASATS will output printed LPDL imagery envelope labels for all acquisitions receiving a B card submitted in the same update (see appendix, fig. A-13).

#### 3.1.4.4 Interactive Query

Provisions will be made for the query of any of the data bases from an interactive terminal for generation of special reports or status queries.

### 3.2 FUNCTIONAL REQUIREMENTS

#### 3.2.1 INPUT

The LACIE Phase III ASATS will accept data from punched cards. Table 3-1 lists the card type, the card title, the responsible organization, the data transmitted to ASATS, and the resulting

TABLE 3-1.- ASATS CARD TYPE AND INFORMATION

Card type	Card title	Responsible organization	Data transmitted to ASATS	Resulting status information		
				Current location	Current status	Current comment
*	Combined strata card	DBA	Segment number Country Region Zone Strata Global designator Priority group LACIE Phase indicator	---	---	---
2	First site card	DAPTS	Segment number Segment type Wheat type LACIE Phase indicator	---	---	---
3	Second site card	DAPTS	Segment number Start Phase I End Phase I Start Phase II End Phase II Start Phase III End Phase III Start Phase IV End Phase IV LACIE Phase indicator	---	---	---
4	Topographic map received	LPDL	Segment number Date topographic map received by LPDL LACIE Phase indicator	---	---	---
5	Crop calendar received	LPDL	Segment number Date crop calendar received by LPDL LACIE Phase indicator	---	---	---
6	Ancillary data received	LPDL	Segment number Date ancillary data received by LPDL LACIE Phase indicator	---	---	---
B	GSFC tape list	LPDL	Segment number Acquisition date GSFC tape number GSFC processing date C&I update date Film flag LACIE Phase indicator	GDSD	Work	PFC

TABLE 3-1.- Concluded.

Card type	Card title	Responsible organization	Data transmitted to ASATS	Resulting status information		
				Current location	Current status	Current comment
G	LPDL film complete	LPDL	Segment number Acquisition date Date film products * received by LPDL	LPDL	Hold	Await CC, ancil, topo
H	Segment packet complete	LPDL	Segment number Acquisition date Date segment packet ready for CAMS pickup	LPDL	Hold	Await CC, ancil
I	Packet received	CAMS	Segment number Acquisition date Date packet received by CAMS	CAMS	Hold	All data complete
9	CAMS reject	CAMS	Segment number Acquisition date Reason rejected	LPDL	Avail	Ready for AI pickup
J	Batch submitted	CAMS	Segment number Acquisition date Date FDB/batch data processing request submitted	GDSD	Work	Interpretation
K	Batch products received	CAMS	Segment number Acquisition date Date batch products received by CAMS	CAMS	Rejt	CAMS reject(-----)
M	Interactive rework	CAMS	Segment number Acquisition date Date rework began	CAMS	Work	Batch processing
X	To CAS	CAMS	Segment number Acquisition date Date to CAS CAMS evaluation category CAMS biophase	CAMS	Work	Analysis
7	Cancelled	OCC	Segment number Acquisition date Reason cancelled	CAS	Comp	Rework
8	Reordered	OCC	Segment number Acquisition date Reason reordered	LPDL	Canc	To CAS NN N.N
Q	Transaction date	OCC	Current operation date	GDSD	Beor	Canc(-----)
U	Image delete	CAMS	Segment number Acquisition date Date Image Deletion requested	---	---	Reor(-----)
				---	---	IMAGE DELETE

\*LACIE Phase Indicator included.

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TABLE 3-2.— GROUND RULES AND COMMENTS

<u>Card type</u>	<u>Comments</u>
* , 2, 3, 4, 5, 6	These cards provide information on sample segments for the DAPTS (parent) data records only.
B	The GSFC tape list card first identifies the receipt of an acquisition at JSC and establishes the acquisition FLOCON (child) record for status-ing and tracking associated with an existing DAPTS (parent) record.
G	<p>The LPDL film complete card indicates LPDL receipt of all PFC film products. A check is automatically made of the segment's previously reported ancillary data availability, and the acquisition status is displayed accordingly:</p> <ul style="list-style-type: none"> <li>• if crop calendar, ancillary summary and topo map all received LPDL-HOLD - ALL DATA COMPLETE</li> <li>• if crop calendar, ancillary summary and topo map not received LPDL-HOLD - AWAIT CC, ANCIL, TOPO</li> <li>• if ancillary summary and crop calendar not received LPDL-HOLD - AWAIT ANCIL/CROP</li> <li>• if crop calendar not received LPDL-HOLD - AWAIT CROP CAL</li> <li>• if crop calendar and topo map not received LPDL-HOLD - AWAIT CROP/TOPO</li> <li>• if ancillary summary and topo map not received LPDL-HOLD - AWAIT ANCIL/TOPO</li> <li>• if topo map not received LPDL-HOLD - AWAIT TOPO</li> <li>• if ancillary summary not received LPDL-HOLD - AWAIT ANCIL</li> </ul>

TABLE 3-2.- Concluded.

<u>Card type</u>	<u>Comments</u>
H	The segment packet complete card indicates that all data have been collected for the specific acquisition, the data placed in the segment packet, and the packet available in the LPDL for CAMS pickup.
I	The packet is received by CAMS for work.
9	The CAMS reject card indicates that the packet has been rejected by CAMS and returned to the LPDL. Disposition is as directed by the OCC (7, 8 cards).
J	The batch processing DPR's have been submitted.
K	Batch processing has been completed and the products have been received by CAMS.
M	The acquisition is receiving interactive rework.
X	The segment summary has been forwarded to CAS. Also displayed are the CAMS category and the CAMS estimate of biowindow.
7	The acquisition has been cancelled for further processing. Reason will appear under comments.
8	The acquisition has been reordered. Reason will appear under comments.
Q	Current date as default for transaction date.
U	Image purged - change CURCOMMENT field accordingly.

ASATS status information. Table 3-2 presents the criteria (comments) for card submittal for each card type used.

### 3.2.2 STORAGE

The amount of storage required to support the LACIE Phase III ASATS will be sized to manipulate an active data base containing as many as 4800 sample segments with as many as 8 acquisitions per sample segment.

### 3.2.3 PROCESSING

#### 3.2.3.1 Input

Cards submitted to the update program will be used to update the two data bases as applicable. The data bases each include the DAPTS (sample segment) records and the FLOCON (acquisition) data records for both the Phase II and Phase III operations.

#### 3.2.3.2 DAPTS Data Records (Phase II and Phase III)

The ASATS must provide records on all sample segments ordered for processing from GSFC. Table 3-3 provides the mnemonic, description, and size for each data field of these records, and indicates if the field is a key. Identical data bases will be established for Phase II data and Phase III data.

#### 3.2.3.3 FLOCON (Acquisition) Data Records (Phase II and Phase III)

The ASATS must provide records for monitoring the status of all acquisitions received at JSC for processing. Table 3-4 provides the mnemonic, description, the size for each data field of these records, and indicates if the field is a key.

### 3.2.4 DATA BASE UPDATE

The input cards to the update program will provide control of each statuzing step as data for the acquisitions are processed

TABLE 3-3.- DAPTS (PARENT) RECORD FORMAT

Field name	Description	Character length	Key
SEG	Segment number	4	
LPI	LACIE phase indicator	1	
COUNTR	Country designator	6	X
REG	Region	2	
ZONE	Zone	4	
STR	Stratum	4	
GD	Global designator	1	
WV	Wheat variety	1	X
PC	Priority code	2	X
TY	Segment type	1	
BIOW1O	Biowindow 1 open (start date)	4	
BIOW1C	Biowindow 1 close (end date)	4	
BIOW2O	Biowindow 2 open	4	
BIOW2C	Biowindow 2 close	4	
BIOW3O	Biowindow 3 open	4	
BIOW3C	Biowindow 3 close	4	
BIOW4O	Biowindow 4 open	4	
BIOW4C	Biowindow 4 close	4	
TOPO	Date topo map received	4	
CROP	Date crop calendar received	4	
ANCIL	Date ancillary data received	4	
SSC	Segment status character	1	
LUP	Date of last update to this record	4	

TABLE 3-4.- FLOCON (CHILD) RECORD FORMAT

Field name	Description	Character length	Key
SEG	Segment number	4	
LPI	LACIE phase indicator	1	
DATAcq	Acquisition date	4	
BW	Biowindow	1	X
FF	Film flag	1	
CURS	Current station/status	1	X
CURCOM	Current comment	20	
TAPE	GSFC tape number	6	
GSFC	GSFC processing date	4	
CANI	G&I update date	4	
LPDLCO	Date film products received from LPDL	4	
AICOMP	Date segment ready for CAMS pickup	4	
PACKRE	Date packet received by CAMS	4	
RUNSUB	Date FDB/batch data processing request submitted	4	
RUNCT	Run count	1	
PROGRE	Date batch products received by CAMS	4	
REWORK	Date rework begun	4	
RWKCT	Rework count	1	
TOCAS	Date to CAS	4	
CAMSBP	CAMS biowindow	3	
CATG	CAMS evaluation category	2	X
LSD	Date of last change to this record	4	

by the various LACIE subsystems. Updates will be initiated periodically by the Data Base Administrator. The following update algorithms are required.

- a. Initially set to zero, the RUNCT (Run Counter) accumulator will be automatically incremented by 1 upon input of the J card containing the "Batch Submitted" date.
- b. Initially set to zero, the RWKCT (Rework Counter) accumulator will be automatically incremented by 1 upon input of the M card containing the "Interactive Rework" begin date.
- c. The CURS [Current Station (Location and Status)] and CURCOMMENT (Current Comments) fields are all to be automatically changed in accordance with the information shown in table 3-1.
- d. Receipt of the G card will update the CURS and CURCOMMENT fields as shown below.

No G card will be accepted unless a corresponding acquisition (child) record exists.

<u>Cards</u>	<u>CURS</u>	<u>CURCOMMENT</u>
4, 5, and 6 cards not received	LPDL HOLD	AWAIT CC/ANCIL/TOPO
6 card only received	LPDL HOLD	AWAIT CROP/TOPO
5 card only received	LPDL HOLD	AWAIT ANCIL/TOPO
5 and 6 card only received	LPDL HOLD	AWAIT TOPO
4 card only received	LPDL HOLD	AWAIT ANCIL/CROP
4 and 6 cards only received	LPDL HOLD	AWAIT CROP CAL
4 and 5 cards only received	LPDL HOLD	AWAIT ANCIL
4, 5, and 6 cards received	LPDL HOLD	ALL DATA COMPLETE

### 3.2.5 AUDIT ALGORITHMS

Internal checks should be made as follows before the appropriate data base is updated. Input failing these criteria will be rejected and reflected in the audit reports.

- B card                    - No FLOCON (child) record will be established unless a corresponding DAPTS (parent) record exists in the data base.
- G card                    - No data base record change should be made unless there is a FLOCON (child) record with matching SEG and DATACQ or there is a corresponding B card in the same input file.
- H card                    - No data base change unless there is data in the LPDLCO field or a matching G card is in the input file.
- I card                    - No change unless there is data in the AICOMP field or a matching H card is in the input file.
- \*, 2, 3 cards            - Audit will verify that all three cards are in the input file before a new DAPTS (parent) record is created in the corresponding data base. An update/modify transaction can be performed on an existing record by submitting any or all three of these cards.
- J card                    - No change unless there is data in the PACKRE field or a matching I card is in the input file.
- K card or M card        - No change unless there is data in the RUNSUB field or a matching J card is in the input file.
- X card                    - No change unless there is data in the PACKRE field or a matching I card is in the input file.
- U card                    - No change unless there is data in the TOCAS field or a corresponding X card is in the input file.

7, 8, or 9 cards - No change unless a FLOCON (child) record exists for the SEG and DATACQ or unless a valid B card is in the input file.

### 3.2.6 DATA BASE MAINTENANCE

Provisions should be made for interactive data base maintenance. Entries made in this mode will change data as commanded, but these will not affect other fields in the data base.

### 3.2.7 OUTPUT

The LACIE Phase III ASATS must provide both detail and statistical summary outputs in the form of printed reports as follows: daily audits, punched cards, labels, daily packet order list, biowindow open report, and biowindow close report. Separate reports will be generated for Phase II and Phase III data.

#### 3.2.7.1 Daily Audits

The purpose of this report is to audit the day's input and operation for checks and verification. This report contains several parts (appendix, figs. A-1 through A-9) as follows:

a. Batch input cards.

Purpose: To provide a listing and count of all cards input for this update.

Contents: All data punched on cards.

Selection criteria: All cards in input card deck.

Sort criteria: Card type.

b. Punch cards listing.

Purpose: To list all cards punched by ASATS on this run.

Contents: All data punched on cards.

Selection criteria: All cards punched this run.

Sort criteria: Card type, segment number, acquisition date, and tape number.

c. Listing of cards submitted.

Purpose: To list all cards in the order of their input this run.

Contents: All data punched on cards.

Selection criteria: All cards in input card deck.

Sort criteria: No sort.

d. Invalid duplicate input cards.

Purpose: To list all cards rejected as duplicates this run.

Contents: All data punched on input cards.

Selection criteria: All cards rejected as duplicates.

Sort criteria: Card type, segment number, and acquisition date.

e. Invalid input card types.

Purpose: To provide a listing of all cards showing invalid card code.

Contents: All data punched on card.

Selection criteria: All cards with no match to valid card code.

Sort criteria: Card type, segment number, and acquisition date.

f. Input cards with invalid LACIE phase.

Purpose: To provide a listing of all cards showing invalid LACIE Phase indicator.

Contents: All data punched on input card.

Selection criteria: All cards with no match to valid LPI.

Sort criteria: Card type, segment number, and acquisition date.

g. Invalid new acquisitions.

Purpose: To provide a listing of all new acquisitions entered into the update but for which no sample segment DAPTS (parent) record was found in the data base.

Contents: Segment, LACIE Phase indicator, acquisition date, GSFC tape number, C&I, film flag, and last status date.

Selection criteria: B card submitted, no DAPTS (parent) record match of segment number in the data base.

Sort criteria: Segment number and date of acquisition.

h. Invalid DAPTS modification.

Purpose: To provide a listing of all DAPTS (parent) record update inputs for which no sample segment was found to exist.

Contents: Card type, segment number, LACIE Phase indicator, transaction date, and last status date.

Selection criteria: 4, 5, or 6 cards submitted; no matching DAPTS (parent) record with segment number in data base.

Sort criteria: Card type and segment number.

i. Invalid FLOCON modifications.

Purpose: To provide a listing of all FLOCON (child) record update inputs for which no segment or no acquisition date match was made. Also lists any update inputs which do not meet the audit algorithms of paragraph 3.2.5.

Contents: All data on card.

Selection criteria: G, H, I, J, K, M, U, X, 7, 8, or 9 cards submitted; no FLOCON (child) record with matching segment number and acquisition date in data base.

Sort criteria: Card type, segment number, and date of acquisition.

#### 3.2.7.2 Daily Packet Order List

This list (appendix, fig. A-10) is printed as a multicopy form to be completed by CAMS personnel for use in ordering segment packets from the LPDL. It indicates all packets available for pickup, count, and statistics.

Contents (fields): Country (CNTRY), priority code (PC), LACIE Phase indicator (LPI), segment number (SEG NO), acquisition date (ACQ DATE), region (REG), zone (ZONE), strata (STR), biowindow (BW), wheat variety (WV), and last change (LAST CHNG). Also included are blank fields for ordered (ORD), count (CNT), delivered (DEL), transaction date (TX DATE), and received date (REC CAMS/LPDL), and comments (COMMENT).

Selection criteria: Current comment = ready for pickup.

Sort criteria: Priority code, country segment number, and date of acquisition (Not to include priority group 1.)

#### 3.2.7.3 Biowindow Open Report

This report (appendix, fig. A-11), satisfies an OCC requirement to display at the first of each month all sample segments with biophase windows opening any time during that month.

Contents: LACIE phase, priority code, country, segment number (SEG), region, zone, strata, biophase (WINDOW NBR), biophase open date, and biophase close date.

Selection criteria: Biophase open date within window specified

Sort criteria: Priority code, country, segment number, and biophase.

#### 3.2.7.4 Biowindow Close Report

This report (appendix, fig. A-12) satisfies an OCC requirement to display at the first of each month all sample segments with biophase windows closing any time during that month.

Contents: LACIE phase, priority code, country, segment number (SEG), region, zone, strata, biophase (WINDOW NBR), biophase open date, and biophase close date.

Selection criteria: Biophase close date within window specified.

Sort criteria: LACIE Phase indicator, priority code, country, segment number, and biophase.

### 3.2.7.5 Packet Labels

The automatic generation of packet labels (appendix, fig. A-13) provides a technique to prevent human errors for the large quantity of LACIE packages.

Contents: LACIE Phase indicator, segment number (SEG), date of acquisition (DATAQ), bio\_hase number (BS), tape number (TAPE #), and film flag (FLAG).

Selection Criteria: Input of the "B" card.

Sort Criteria: LACIE Phase indicator, segment number, and date of acquisition.

APPENDIX  
REPORT EXAMPLES

LACIE PHASE II/III  
BATCH INPUT CARDS

PHASE 2

CARD \*

CARD	SEG	LPI	DATA	CQU	OTHER	COUNT
* 1783	2		US	9999 9999 9999 9999	G 8A	1
* 1784	2		US	9999 9999 9999 9999	G 8A	1
* 1790	2		US	9999 9999 9999 9999	G 8A	1
* 1791	2		US	9999 9999 9999 9999	G 8A	1
* 1792	2		US	9999 9999 9999 9999	G 8A	1
* 1793	2		US	9999 9999 9999 9999	G 8A	1
* 1794	2		US	9999 9999 9999 9999	G 8A	1
* 1795	2		US	9999 9999 9999 9999	G 8A	1
* 1796	2		US	9999 9999 9999 9999	G 8A	1
* 1797	2		US	9999 9999 9999 9999	G 8A	1
* 1798	2		US	9999 9999 9999 9999	G 8A	1
* 1799	2		US	9999 9999 9999 9999	G 8A	1
						----- 12

CARD 2

2 1784	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1785	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1786	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1790	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1791	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1792	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1793	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1794	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1795	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1796	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1797	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1798	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
2 1799	2	1	T	N030/00	W090/00	0	0123	1501	NH15-7	1501	NH15-6	ONC	K-26	1
														----- 13

CARD 3

3 1786	2	6900	1	69050	69069	69100	69120	69180	69200	69300	1
3 1787	2	6900	1	69050	69069	69100	69120	69180	69200	69300	1
3 1790	2	6900	1	69050	69069	69100	69120	69180	69200	69300	1
3 1791	2	6900	1	69050	69069	69100	69120	69180	69200	69300	1
3 1792	2	6900	1	69050	69069	69100	69120	69180	69200	69300	1
3 1793	2	6900	1	69050	69069	69100	69120	69180	69200	69300	1
3 1794	2	6900	1	69050	69069	69100	69120	69180	69200	69300	1
3 1795	2	6900	1	69050	69069	69100	69120	69180	69200	69300	1
3 1796	2	6900	1	69050	69069	69100	69120	69180	69200	69300	1
3 1797	2	6900	1	69050	69069	69100	69120	69180	69200	69300	1

ORIGINAL PAGE IS  
OF POOR QUALITY

Figure A-1.— Sample format of LACIE batch input cards report.

A-1

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LACIE PHASE II/III  
BATCH INPUT CARDS

CARD	SEG	LPI	DATA	QU	OTHER	COUNT
3	1798	2	6900	1	69050 69069 69100 69120 69180 69200 69300	1
3	1799	2	6900	1	69050 69069 69100 69120 69180 69200 69300	1
						12
CARD 4						
4	1791	2		7001		1
4	1794	2		7001		1
4	1795	2		7001		1
4	1797	2		7001		1
						4
CARD 5						
5	1792	2		7002		1
5	1794	2		7002		1
5	1796	2		7002		1
5	1797	2		7002		1
						4
CARD 6						
6	1793	2		7003		1
6	1795	2		7003		1
6	1796	2		7003		1
6	1797	2		7003		1
						4
CARD 8						
8	1791	2	7111	7112	777001 7001 7001 1	1
8	1792	2	7111	7112	777001 7001 7001 1	1
8	1793	2	7111	7112	777001 7001 7001 1	1
8	1794	2	7111	7112	777001 7001 7001 1	1
8	1795	2	7111	7112	777001 7001 7001 1	1
8	1796	2	7111	7112	777001 7001 7001 1	1
8	1797	2	7111	7112	777001 7001 7001 1	1
8	1798	2	7111	7112	771111 7111 7111 1	1
8	1800	2	7111	7112	771111 7111 7111 1	1
						9

Figure A-1.- Concluded.

PUNCH CARDS LISTING  
JANUARY 26, 1977

ASATS PUNCHED CARDS (NEW 4,5,6,G,H)

G 172937022  
H 172937022  
G 172937023  
H 172937023  
G 174137023  
H 174137023  
G 175337022  
H 175337022  
G 501A37023  
H 501A37023  
G 502937023  
H 502937023  
G 503337023  
H 503337023  
G 520937023  
H 520937023  
G 521437023  
H 521437023  
G 523537023  
H 523537023  
G 525337023  
H 525337023  
G 530337023  
H 530337023  
G 531037023  
H 531037023  
G 531337023  
H 531337023  
G 531537023  
H 531537023  
G 531737023

Figure A-2.— Sample format of punch cards listing.

Q 7112

C 17142US	9999 9999 9999 9999 G 8A
C 17152US	9999 9999 9999 9999 G 8A
* 17818US	9999 9999 9999 9999 G 8A
* 17825US	9999 9999 9999 9999 G 8A
* 17832US	9999 9999 9999 9999 G 8A
* 17842US	9999 9999 9999 9999 G 8A
2 178421 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
2 178521 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
2 178621 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
3 1786269001 69050 69069 69100 69120 69180 69200 69300	
3 1787269001 69050 69069 69100 69120 69180 69200 69300	
* 17902US	9999 9999 9999 9999 G 8A
2 179021 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
3 1790269001 69050 69069 69100 69120 69180 69200 69300	
* 17912US	9999 9999 9999 9999 G 8A
2 179121 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
3 1791269001 69050 69069 69100 69120 69180 69200 69300	
B 179127111	Z77001 7001 7001 1
4 17912	7001
* 17922US	9999 9999 9999 9999 G 8A
2 179221 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
3 1792269001 69050 69069 69100 69120 69180 69200 69300	
B 179227111	Z77001 7001 7001 1
5 17922	7002
* 17932US	9999 9999 9999 9999 G 8A
2 179321 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
3 1793269001 69050 69069 69100 69120 69180 69200 69300	
B 179327111	Z77001 7001 7001 1
6 17932	7003
* 17942US	9999 9999 9999 9999 G 8A
2 179421 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
3 1794269001 69050 69069 69100 69120 69180 69200 69300	
B 179427111	Z77001 7001 7001 1
4 17942	7001
5 17942	7002
* 17952US	9999 9999 9999 9999 G 8A
2 179521 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
3 1795269001 69050 69069 69100 69120 69180 69200 69300	
B 179527111	Z77001 7001 7001 1
4 17952	7001
6 17952	7003
* 17962US	9999 9999 9999 9999 G 8A
2 179621 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
3 1796269001 69050 69069 69100 69120 69180 69200 69300	
B 179627111	Z77001 7001 7001 1
5 17962	7002
6 17962	7003
* 17972US	9999 9999 9999 9999 G 8A
2 179721 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
3 1797269001 69050 69069 69100 69120 69180 69200 69300	
B 179727111	Z77001 7001 7001 1
4 17972	7001
5 17972	7002
6 17972	7003
* 17982US	9999 9999 9999 9999 G 8A
2 179821 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26
3 1798269001 69050 69069 69100 69120 69180 69200 69300	
B 179827111	Z71111 7111 7111 1
B 179827111	Z71111 7111 7111 1
* 17992US	9999 9999 9999 9999 G 8A
2 179921 T N030/00 W090/00 0 0123 1501 NH15-7 1501 NH15-6	ONC K-26

Figure A-3.— Sample format of cards submitted report.

3	1799269001	69050 69069 69100 69120 69180 69200 69300
G	179927111	
U	105226129	
K	146226254	
M	146226254	
G	168326220	
H	168326220	
I	168326220	
J	168326220	
K	168326220	
M	168326220	
X	168326220	99 9.9
U	168326220	
G	168426220	
I	168426220	
J	168426220	
K	168426220	
M	168426220	
X	168426220	99 9.9
U	168426220	
H	168726272	
J	174426261	
B	180027111	Z71111 7111 7111 1
G	180027111	
H	180027111	
H	180027111	
I	180027111	
J	180027111	
K	180027111	
M	180027111	
X	180027111	
U	180027111	
7	180027111	
9	180027111	
I	196526258	
X	196526258	99 9.9
7	197526263	CANCEI TEST
8	197727111	RFORDER TEST
9	197926277	REJECT TEST

Figure A-3.— Concluded.

B 179827111	271111 7111 7111 1	INVALID DUPLICATE
H 180027111		INVALID DUPLICATE

Figure A-4.— Sample format of invalid duplicate input cards report.

INPUT CARDS WITH INVALID CARD TYPE (COL 2)			
C 17142US	9999 9999 9999 9999 G 8A	INVALID TYPE	1 2
C 17152US	9999 9999 9999 9999 G 8A	INVALID TYPE	2 3

Figure A-5.— Sample format of invalid input card types report.

INPUT CARDS WITH INVALID LACIE PHASE			
* 1781BUS	9999 9999 9999 9999 G 8A	INVALID LACIE PHASE	1 4
* 17825US	9999 9999 9999 9999 G 8A	INVALID LACIE PHASE	2 5

Figure A-6.— Sample format of invalid LACIE Phase indicator report.

INVALID NEW ACQUISITIONS

105037011 7026 A60432 7025 7026 1

Figure A-7.— Sample format for invalid new acquisitions.

INVALID DAPTS MODIFICATIONS

4 99983 7026 7026

Figure A-8.— Sample format for invalid DAPTS  
modifications report.

INVALID ACQUISITION MODIFICATIONS

I 101537026

Figure A-9.— Sample format for the invalid acquisition (child)  
modifications report.

DAILY PACKET ORDER LIST  
JAN 26, 1977

PHASE III

CNTRY/PC US 2

ORD	SEG NO	LPI	ACQ DATE	REG	ZONE	STR	B W	W V	CNT	LAST CHNG	DEL	TX DATE	REC	CAMS/LPDL	COMMENT
1015	3	0396	0008	009	009	009	1	W		02/26/76					
1015	3	0566	0008	009	009	009	1	W		03/05/76					
1017	3	0556	0020	000	003	003	1	W		03/08/76					
1052	3	0566	0048	000	011	011	1	W		03/08/76					
1084	3	0206	0048	000	043	043	1	W		03/03/76					
1181	3	0536	0020	000	003	003	1	W		03/08/76					
1232	3	0546	0040	003	007	007	1	W		03/08/76					
1234	3	0546	0040	004	000	000	1	W		03/02/76					
1572	3	0566	0031	005	004	004	1	W		03/04/76					
1573	3	0556	0031	005	007	007	1	W		03/08/76					
1580	3	0566	0031	007	005	005	1	W		03/08/76					
1885	3	0546	0020	000	015	015	1	W		03/02/76					

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Figure A-10.— Sample format for the daily packet order list.

LACIE  
BIOLOGICAL WINDOW OPENINGS

6220 - 7129

1-25-77

PHASE III

SEG	REGION	ZONE	STRATA	OPEN DATE	CLOSE DATE
PRIORITY CODE 9			WINDOW NBR 1		
CNTRY XXXX					
5300	0006	0006	0006	6259	7129
5301	0006	0006	0006	6259	7129
5304	0006	0006	0006	6259	7129
5308	0006	0006	0006	6259	7129
5320	0006	0006	0006	6259	7129
5322	0006	0006	0006	6259	7129
5323	0006	0006	0006	6259	7129
5334	0006	0006	0006	6259	7129
5335	0006	0006	0006	6259	7129
5338	0006	0006	0006	6259	7129
5345	0006	0006	0006	6259	7129
5348	0006	0006	0006	6259	7129
5850	0018	0018	0018	6259	7129
5854	0018	0018	0018	6259	7129
5855	0018	0018	0018	6259	7129
5858	0018	0018	0018	6259	7129
5860	0018	0018	0018	6259	7129
5863	0018	0018	0018	6259	7129
5871	0018	0018	0018	6259	7129
5874	0018	0018	0018	6259	7129
6019	0020	0020	0020	6259	7129
6100	0021	0021	0021	6259	7129
6103	0021	0021	0021	6259	7129
6108	0021	0021	0021	6259	7129
6117	0021	0021	0021	6259	7129
6120	0021	0021	0021	6259	7129
6123	0021	0021	0021	6259	7129
6129	0021	0021	0021	6259	7129
6132	0021	0021	0021	6259	7129
6146	0021	0021	0021	6259	7129
6149	0021	0021	0021	6259	7129
6150	0021	0021	0021	6259	7129
6156	0021	0021	0021	6259	7129
6159	0021	0021	0021	6259	7129
6164	0021	0021	0021	6259	7129
6172	0021	0021	0021	6259	7129
6177	0021	0021	0021	6259	7129

Figure A-11.- Sample format for the LACIE Phase III biological window openings report.

LACIE  
BIOLOGICAL WINDOW CLOSINGS  
7032 - 7059  
1-27-77

PHASE 3

SEG	REGION	ZONE	STRATA	OPEN DATE	CLOSE DATE
PRIORITY CODE 10			WINDOW NBR 4		
CNTRY XXXXX					
5000	0001	0001	0001	6288	7092
5001	0001	0001	0001	6274	7092
5002	0001	0001	0001	6244	7092
5003	0001	0001	0001	6288	7092
5004	0001	0001	0001	6244	7092
5005	0001	0001	0001	6244	7092
5006	0001	0001	0001	6274	7092
5007	0001	0001	0001	6288	7092
5008	0001	0001	0001	6259	7092
5009	0001	0001	0001	6288	7092
5010	0001	0001	0001	6259	7092
5011	0001	0001	0001	6288	7092
5012	0001	0001	0001	6274	7092
5013	0001	0001	0001	6244	7092
5014	0001	0001	0001	6288	7092
5015	0001	0001	0001	6244	7092
5016	0001	0001	0001	6244	7092
5017	0001	0001	0001	6244	7092
5018	0001	0001	0001	6288	7092
5019	0001	0001	0001	6288	7092
5020	0001	0001	0001	6288	7092
5021	0001	0001	0001	6288	7092
5022	0001	0001	0001	6274	7092
5023	0001	0001	0001	6274	7092
5024	0001	0001	0001	6244	7092
5025	0001	0001	0001	6244	7092
5026	0001	0001	0001	6288	7092
5027	0001	0001	0001	6244	7092
5028	0001	0001	0001	6274	7092
5029	0001	0001	0001	6244	7092

Figure A-12.— Sample format for the LACIE Phase III biological window closings report.

PACKET LABELS

PHASE IIT  
SEG# DATE RS TAPE# FLAG  
1729 7022 1 A70271

PHASE IIT  
SEG# DATE RS TAPE# FLAG  
1729 7023 1 A70271

PHASE IIT  
SEG# DATE RS TAPE# FLAG  
1741 7023 1 A70271

PHASE IIT  
SEG# DATE RS TAPE# FLAG  
1753 7022 1 A70271

PHASE IIT  
SEG# DATE RS TAPE# FLAG  
501A 7023 1 A70271

PHASE IIT  
SEG# DATE RS TAPE# FLAG  
5029 7023 1 A70271

PHASE IIT  
SEG# DATE RS TAPE# FLAG  
5033 7023 1 A70271

PHASE IIT  
SEG# DATE RS TAPE# FLAG  
5209 7023 1 A70271

PHASE IIT  
SEG# DATE RS TAPE# FLAG  
5235 7023 1 A70271

PHASE IIT  
SEG# DATE RS TAPE# FLAG  
5303 7023 1 A70271

Figure A-13.— Sample format for the LACIE Phase III  
packet labels.